

WHAT IS CLAIMED IS:

1. An isolated and purified DNA molecule encoding a *Candida albicans* protein with integrin-like motifs that hybridizes to DNA complementary to DNA having SEQ ID NO:1 under the stringency conditions of hybridization in buffer containing 5x SSC,
5 5x Denhardt's, 0.5% SDS, 1mg salmon sperm/25 mls of hybridization solution incubated at 65°C overnight, followed by high stringency washing with 0.2x SSC/0.1% SDS at 65°C.
2. The DNA molecule of claim 1 wherein the *Candida albicans* protein with integrin-like motifs contains an I domain, two EF-hand divalent cation binding sites, a
10 sequence sufficient to encode a transmembrane domain, an internal RGD tripeptide, and a carboxy-terminal sequence with a single tyrosine residue.
3. An isolated and purified DNA molecule encoding the *Candida albicans* protein with integrin-like motifs which has an amino acid sequence having SEQ ID NO:2.
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4. An isolated and purified DNA molecule having SEQ ID NO:1.
5. A vector comprising the DNA of claim 4.
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6. A cell line transformed by an extrachromosomal plasmid containing non-native DNA encoding the *Candida albicans* protein with integrin-like motifs, wherein said DNA hybridizes with DNA complementary to DNA having SEQ ID NO:1 under the stringency conditions of hybridization in buffer containing 5x SSC, 5x Denhardt's,
25 0.5% SDS, 1mg salmon sperm/25 mls of hybridization solution incubated at 65°C overnight, followed by high stringency washing with 0.2x SSC/0.1% SDS at 65°C.
7. The cell line of claim 6 wherein the *Candida albicans* protein with integrin-like motifs contains an I domain, two EF-hand divalent cation binding sites, a sequence
30 sufficient to encode a transmembrane domain, an internal RGD tripeptide, and a

carboxy-terminal sequence with a single tyrosine residue.

8. The cell line of claim 6 comprising *S. cerevisiae*.
- 5 9. A cell line transformed by an extrachromosomal plasmid containing non-native DNA encoding the *Candida albicans* protein with integrin-like motifs, which has the amino acid sequence having SEQ ID NO:2.
- 10 10. The cell line of claim 9 comprising *S. cerevisiae*.
- 11 11. A cell line transformed by an extrachromosomal plasmid containing non-native DNA encoding the *Candida albicans* protein with integrin-like motifs, the DNA having SEQ ID NO:1.
- 15 12. The cell line of claim 11 comprising *S. cerevisiae*.
13. An isolated and purified *Candida albicans* protein with integrin-like motifs comprising an I domain, two EF-hand divalent cation binding sites, a sequence sufficient to encode a transmembrane domain, an internal RGD tripeptide, and a
20 carboxy-terminal sequence with a single tyrosine residue.
14. The isolated and purified *C. albicans* integrin-like protein of claim 13, which has an amino acid sequence having SEQ ID NO:2.
- 25 15. An isolated and purified peptide, which has an amino acid sequence having SEQ ID NO:3.
16. An isolated and purified peptide having an amino acid sequence selected from the group consisting of:
30 (a) YLS PTN NNN SKN VSD MDL HLQ NL (SEQ ID NO:4);

- (b) DWK LED SND GDR EDN DDI SRF EK (SEQ ID NO:5);
- (c) SKS ANT VRG DDD GLA SA (SEQ ID NO:6);
- (d) DHL DSF DRS YNH TEQ SI (SEQ ID NO:7); and
- (e) WIQ NLQ EII YRN RFR RQ (SEQ ID NO:8).

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17. An isolated and purified antibody to a *Candida albicans* integrin-like protein, which has an amino acid sequence having SEQ ID NO:2.

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18. An isolated and purified antibody to a peptide which has an amino acid sequence having SEQ ID NO:3.

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19. An isolated and purified antibody to a peptide having an amino acid sequence selected from the group consisting of:

- (a) YLS PTN NNN SKN VSD MDL HLQ NL (SEQ ID NO:4);
- (b) DWK LED SND GDR EDN DDI SRF EK (SEQ ID NO:5);
- (c) SKS ANT VRG DDD GLA SA (SEQ ID NO:6);
- (d) DHL DSF DRS YNH TEQ SI (SEQ ID NO:7); and
- (e) WIQ NLQ EII YRN RFR RQ (SEQ ID NO:8).

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20. A vaccine comprising a *Candida albicans* integrin-like protein or peptide having an amino acid sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, and combinations thereof.

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21. A method of inhibiting adhesion of *Candida albicans* to cells, comprising contacting the *Candida albicans* blastospores with antibodies to the *Candida albicans* protein with integrin-like motifs or to fragments thereof.

22. The method of claim 21 wherein the cells are epithelial cells.

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23. The method of claim 22 wherein the cells are human epithelial cells.
24. The method of claim 21 wherein the *Candida albicans* integrin-like protein has an amino acid sequence which is SEQ ID NO:2.
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25. A method of inhibiting adhesion of *Candida albicans* to cells, comprising contacting the cells with antibodies to a peptide, which has an amino acid sequence having SEQ ID NO:3.
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26. A method of inhibiting adhesion of *Candida albicans* to cells, comprising contacting the *Candida albicans* with antibodies to a peptide having an amino acid sequence selected from the group consisting of:
 - (a) YLS PTN NNN SKN VSD MDL HLQ NL (SEQ ID NO:4);
 - (b) DWK LED SND GDR EDN DDI SRF EK (SEQ ID NO:5);
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 - (c) SKS ANT VRG DDD GLA SA (SEQ ID NO:6);
 - (d) DHL DSF DRS YNH TEQ SI (SEQ ID NO:7); and
 - (e) WIQ NLQ EII YRN RFR RQ (SEQ ID NO:8).
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27. A method of delivering a gene product to a subject, comprising administering *S. cerevisiae* transformed by an extrachromosomal plasmid containing non-native DNA encoding the *Candida albicans* protein with integrin-like motifs.
28. An isolated and purified antibody to a *Candida albicans* integrin-like protein, which has an amino acid sequence having SEQ ID NO:2.
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29. The antibody of claim 28 wherein the antibody is monoclonal, polyclonal, or combinations thereof.
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30. The antibody of claim 28 wherein the antibody blocks *Candida albicans* adhesion to epithelial and/or endothelial cells by at least about 30 percent.

31. The antibody of claim 30 wherein the antibody blocks *Candida albicans* adhesion to epithelial and/or endothelial cells by at least about 50 percent.
32. An isolated and purified antibody to a peptide which has an amino acid sequence having SEQ ID NO:3.
33. The antibody of claim 32 wherein the antibody is monoclonal, polyclonal, or combinations thereof.
34. The antibody of claim 32 wherein the antibody blocks *Candida albicans* adhesion to epithelial and/or endothelial cells by at least about 30 percent.
35. The antibody of claim 34 wherein the antibody blocks *Candida albicans* adhesion to epithelial and/or endothelial cells by at least about 50 percent.
36. An isolated and purified antibody to a peptide having an amino acid sequence selected from the group consisting of:
 - (a) YLS PTN NNN SKN VSD MDL HLQ NL (SEQ ID NO:4);
 - (b) DWK LED SND GDR EDN DDI SRF EK (SEQ ID NO:5);
 - (c) SKS ANT VRG DDD GLA SA (SEQ ID NO:6);
 - (d) DHL DSF DRS YNH TEQ SI (SEQ ID NO:7); and
 - (e) WIQ NLQ EII YRN RFR RQ (SEQ ID NO:8).
37. The antibody of claim 36 wherein the antibody is monoclonal, polyclonal, or combinations thereof.
38. The antibody of claim 36 wherein the antibody blocks *Candida albicans* adhesion to epithelial and/or endothelial cells by at least about 30 percent.
39. The antibody of claim 38 wherein the antibody blocks *Candida albicans* adhesion to

epithelial and/or endothelial cells by at least about 50 percent.

40. An isolated and purified antibody to a *Candida albicans* peptide with integrin-like motifs encoded by a polynucleotide that hybridizes to DNA complementary to DNA having SEQ ID NO:1 under stringency conditions of hybridization in buffer containing 5x SSC, 5x Denhardt's, 0.5% SDS, 1mg salmon sperm/25 mls of hybridization solution incubated at 65°C overnight, followed by high stringency washing with 0.2x SSC/0.1% SDS at 65°C.
41. The antibody of claim 40 wherein the *Candida albicans* peptide with integrin-like motifs contains an I domain, two EF-hand divalent cation binding sites, a sequence sufficient to form a transmembrane domain, an internal RGD tripeptide, and a carboxy-terminal sequence having a single tyrosine residue.
42. The antibody of claim 40 wherein the antibody is monoclonal, polyclonal, or combinations thereof.
43. The antibody of claim 40 wherein the antibody blocks *Candida albicans* adhesion to epithelial and/or endothelial cells by at least about 30 percent.
44. The antibody of claim 43 wherein the antibody blocks *Candida albicans* adhesion to epithelial and/or endothelial cells by at least about 50 percent.
45. The antibody of claim 40 wherein the *Candida albicans* peptide with integrin-like motifs is encoded by a polynucleotide having SEQ ID NO:1.
46. An isolated and purified antibody to a *Candida albicans* peptide with integrin-like motifs, wherein the *Candida albicans* peptide is selected from different morphological stages of *Candida albicans* development consisting of blastospores, germ tubes, and hyphae, and wherein the antibody blocks *Candida albicans* peptide

adhesion to epithelial cells.

47. The isolated and purified antibody of claim 46 wherein the antibody blocks *Candida albicans* epithelial cell adhesion by at least about 30 percent.

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48. The isolated and purified antibody of claim 46 wherein the *Candida albicans* peptide with integrin-like motifs contains an I domain, two EF-hand divalent cation binding sites, a sequence sufficient to form a transmembrane domain, an internal RGD tripeptide, and a carboxy-terminal sequence having a single tyrosine residue.

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